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PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2000-347292
(43)Date of publication of application : 15.12.2000

(51)Int.CI. G03B 21/14
G02F 1/13
G02F 1/133
G09F 9/00

(21)Application number : 2000-091157
(22)Date of filing : 29.03.2000

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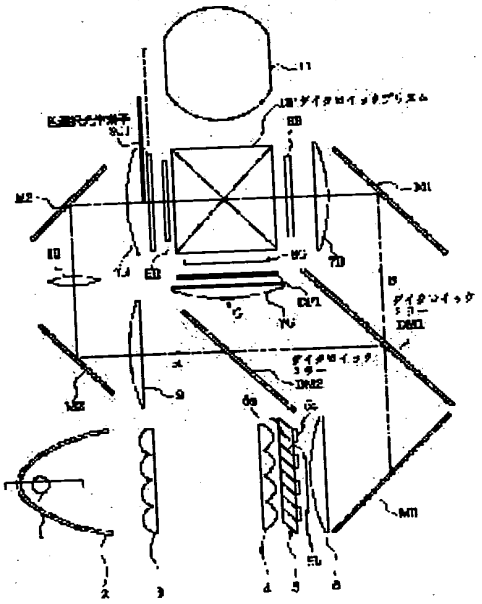
(30)Priority
Priority number : 11089196 Priority date : 30.03.1999 Priority country : JP

(54) DISPLAY DEVICE

(57)Abstract:
PROBLEM TO BE SOLVED: To realize optimum picture display in accordance with use purpose.
SOLUTION: An edge filter SC1 having characteristics that light in the >600 nm wavelength region is transmitted and the light in wavelength regions other than that region is cut off is attachably/detachably provided in an optical path between a picture display element 8R for red pictures and a dichroic mirror DM2. In a state where the filter SC1 is put in the optical path, display where color purity is prioritized is performed, and the control system of picture display elements 8B, 8G and 8R in a state that the filter SC1 is put out of the optical path is made different from that in a state that the filter SC1 is put in the optical path. Thus, the display where brightness with natural hues is prioritized is performed.



LEGAL STATUS
[Date of request for examination] 19.11.2003
[Date of sending the examiner's decision of rejection]
[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.

2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1] In the display which forms the image of each color by modulating the light of each color by one display device even if it carries out incidence of two or more light from which a color differs mutually to at least one display device and there is none of these ** The display characterized by changing the control format of this image display component according to being able to change the purity of at least one color in this each color, and changing the purity of this predetermined color.
[Claim 2] It is the display according to claim 1 with which one color is characterized by red or the green thing even if there is none of these **.
[Claim 3] The display according to claim 1 or 2 characterized by changing the purity of said at least one color by taking a band cut-off filter or an edge filter in and out of the optical path of said at least one color.
[Claim 4] The display according to claim 3 characterized by having a detection means to detect the location of said filter, and changing said control format based on the signal from this detection means.
[Claim 5] For example, a display given in any 1 term of claims 1-4 characterized by forming the image of said at least one color using the light of a different color from the light of said predetermined color, and this predetermined color when reducing the purity of said predetermined color like [when said filter is not inserted].
[Claim 6] The display according to claim 5 with which said at least one color is characterized by red or being green and said different color being blue.
[Claim 7] The display according to claim 1 characterized for said two or more light from which a color differs mutually by coincidence or carrying out a sequential exposure to one image display component.
[Claim 8] The display according to claim 1 characterized by having an image display component corresponding to each color of two or more of said light.
[Claim 9] The display of claims 1-5 characterized by changing said control format so that it may become narrower than the color reproduction range when the color reproduction range when the purity of said color is relatively low has the relatively high purity of this color.
[Claim 10] The color picture display which the purity of at least one color in a light in three primary colors is adjustable, and is characterized by controlling an image display component in the color reproduction range narrower than the color reproduction range when purity is high in a color picture display when the purity of this color is low.
[Claim 11] A display given in any 1 term of claims 1-10 characterized by being the projection mold display which has the optical system which projects the light from said at least one image display component.

[Translation done.]

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the projection mold indicating equipment used for an indicating equipment especially a static image, the big screen display of an animation (video image), etc.
[0002]
[Description of the Prior Art] the presentation using recent years and a computer -- setting -- displaying the image of a computer or displaying the video image of television **** -- etc. -- the purpose of using a projection mold display is diversified, and the display with which the optimal color purity, color balance, an illuminance, etc. are obtained to the image which was projected according to the purpose of use for this reason is called for.
[0003] Drawing 37 shows an example of the conventional projection mold display.
[0004] The white light injected from the lamp unit 100 which has the reflector 102 which reflects the light from the light source 101 and the light source in this drawing After passing the fly eye lens arrays 103 and 104, the polarization sensing-element array 105, a condensing lens 106, and total reflection mirror M0 grade, It is separated into the light of red, green, and the wavelength band of each blue color by dichroic mirrors DM1 and DM2. Incidence of the blue glow is carried out to image display component 108B for blue images through a total reflection mirror M1 and condensing lens 107B. Incidence of the green light is carried out to 108G of image display components for green images through condensing lens 107G. Incidence of the red light is carried out to image display component 108R for red images through a condensing lens 109, a total reflection mirror M2, a relay lens 110, a total reflection mirror M3, and condensing lens 107R. Carry out incidence of each colored light (color image) from each display device to the dichroic prism DP as optical system for color composition, and it is compounded by one. Expansion projection of the light of three compounded colors is carried out with a projector lens 111 at a non-illustrated screen etc., and the synthetic image (full color image) of the image displayed on the image display components 108R, 108G, and 108B is expanded and formed there.
[0005] As the light source 101 in drawing 37 , discharge lamps, such as metal high RAIDO and a mercury lamp, are used.
[0006] Drawing 38 shows the spectral distribution of such a discharge lamp, and, generally spectral distribution have continuous intensity distribution in the wavelength field of the 400nm - 700nm light.
[0007] In the color-separation system which contains dichroic mirrors DM1 and DM2 in the projection mold display of said conventional example this white light Then, red, In case it separates into each colored light of green and blue, green will become yellow if a 570nm - 600nm wavelength field is incorporated for the component of green light at this time. Since red will become orange and it will be hard coming to express a red pure color if it is hard coming to express a green pure color, and that is not right and a 570nm - 600nm wavelength field is incorporated for the component of red light A die clo IKKU filter etc. is prepared out of dichroic mirrors DM1 and DM2 at the optical incidence side of some image display components. With these filters The light of a 570nm - 600nm wavelength field is removed, and the component of the light of this 570nm - 600nm wavelength field is constituted so that each image display component the object for green and for red may not be reached.
[0008] Drawing 39 shows the spectral distribution of the white light compounded with the dichroic prism DP when removing the light of the wavelength field of 570nm - 600nm **.
[0009] In the configuration of the projection mold display of the above-mentioned conventional example the spectral transmittance of dichroic mirrors DM1 and DM2, respectively Drawing 40 (a), It is shown in (b). the object for green images, although the die clo IKKU filters DF1 and DF2 are formed in the optical

optical incidence [of image display component 108G], and incidence side of image display component 108R for red images, respectively and the light of a 570nm - 600nm wavelength field is removed The spectral transmittance of each required die clo IKKU filters DF1 and DF2 is shown in drawing 41 (a) and (b), respectively.
[0010] On the other hand to JP,7-72450,A, the light of a 570nm - 600nm wavelength field as shown in drawing 42 is reflected and prevented. By and the thing which the die clo IKKU filter which the other light is made to ****** and is turned to an image display component is prepared into the optical path between the light source and a dichroic mirror DM 1, and is inserted [filter / this / die clo IKKU] out of this optical path It is made switchable in the condition of using it with the condition of not using light of a 570nm - 600nm wavelength field. Since the purity of a color is good when not using it, the color picture which gave priority to color reproduction nature is displayed, and when it is used, the projection mold display which could be made to perform the display of the color picture which gave priority to brightness according to increase of the total quantity of light is known.
[0011]
[Problem(s) to be Solved by the Invention] By the way, in the projection mold display shown in the above-mentioned patent public presentation official report, since the image display component was controlled by the fixed control format [be / no relation to insertion and detachment of a die clo IKKU filter], in the display (with no die clo IKKU filter) of brightness priority, the color reproduction in a color picture was unnatural, and image quality was deteriorating considerably.
[0012] This invention aims at offering a display with deterioration of image quality smaller than before.
[0013]
[Means for Solving the Problem] Invention of claim 1 of this application has at least one display device and the optical system which carries out incidence of two or more light from which a color differs mutually to one display device even if there is none of these **. Even if this ** cannot be found, in the display which forms the image of each color in modulating the light of each color by one display device, the purity of the predetermined color of this each color is adjustable, and it is characterized by changing the control format of this display device according to changing the purity of this predetermined color.
[0014] Even if invention of claim 2 does not have this **, one color is characterized by red or the green thing.
[0015] Invention of claim 3 is characterized by changing the purity of said at least one color by taking a band cut-off filter or an edge filter in and out of the optical path of said at least one color.
[0016] It is characterized by for invention of claim 4 having a detection means to detect the location of said filter, in invention of claim 3, and changing said control format based on the signal from this detection means.
[0017] Invention of claim 5 is characterized by forming the image of said at least one color using the light of a different color from the light of said predetermined color, and this predetermined color, when reducing the purity of said predetermined color like [when said filter is not inserted, for example].
[0018] It is green and, as for invention of claim 6, said at least one color is characterized by red or said different color being blue.
[0019] Invention of claim 7 is characterized for said two or more light from which a color differs mutually by coincidence or carrying out a sequential exposure to one image display component.
[0020] Invention of claim 8 is characterized by having an image display component corresponding to each color of two or more of said light.
[0021] In said each claim, invention of claim 9 is characterized by changing said control format so that it may become narrower than the color reproduction range when the color reproduction range when the purity of said color is relatively low has the relatively high purity of this color.
[0022] In a color picture display, the purity of at least one color in a light in three primary colors is adjustable, and invention of claim 10 is characterized by controlling an image display component in the color reproduction range narrower than the color reproduction range when purity is high, when the purity of this color is low.
[0023] In said each claim, it is characterized by being the projection mold display which has the optical system which projects the light from said at least one image display component.
[0024]
[Embodiment of the Invention] <Example 1> The optical plot plan of the 1st example of the projection mold display by this invention is shown in drawing 1 . It is the polarization sensing-element array which 1 becomes from the source of the white light, reflector 5b of the 1st fly eye lens, polarization demarcation membrane 5a of plurality [4 / 5 / the 2nd fly eye lens and], and plurality, and two or more wavelength

plate 5c in drawing 1 . [2] [3 / a reflector and] 6 is DM1, a condenser lens and DM2 are dichroic mirrors, and SC1 is the colour selection optical element it can insert [optical element]. DF1 is a die clo IKKU filter, 7R, 7G, and 7B are field lenses, respectively, 8R, 8G, and 8B are the object for the ******** (red R) images, an object for (Green G) images, and a well-known image display component for (blue B) images, DP is a dichroic prism, and 11 is a projector lens.

[0025] Here, an optical element SC 1 is a component equipped with the die clo IKKU filter (interference film) or color filter (light absorption film) arranged possible [insertion and detachment] to the optical path of a red light. Moreover, the fly eye lenses 3 and 4 are the lens arrays which put the lens in order two-dimensional.

[0026] In addition, the spectral transmittance (reflection factor) property of dichroic mirrors DM1 and DM2 is a property shown in (a) of drawing 2 , and (b), respectively, and the spectral transmittance (reflection factor) property of the die clo IKKU filter DF 1 and the colour selection optical element SC 1 is a property shown in drawing 3 and drawing 4 , respectively.

[0027] An operation of the optical system of drawing 1 is explained. With a reflector 2, it is reflected and condensed and the white light injected from the light source 1 grows into parallel light. After passing the fly eye lenses 3 and 4, the polarization sensing-element array 5, and a condenser lens 6, It is separated into 3 colored light of R, G, and B by dichroic mirrors DM1 and DM2. Pass field RENSU 7R, 7G, and 7B, and the image display components 8R, 8G, and 8B are penetrated. Each colored light of R, G, and B is compounded by one with a dichroic prism DP, it is projected on three compounded colored light (image) by a screen (un-illustrating) and the wall (un-illustrating) with a projector lens 11 at expansion, and the full color image expanded there is formed.

[0028] Here, the light source 1 has the spectral characteristic shown in drawing 5 like the conventional example, the white light from the light source 1 is separated into a blue (B) colored light component and the other colored light component by the dichroic mirror DM 1 bordering on the wavelength of 505nm, and blue glow is led to image display component 8B through field lens 7B. The colored light component reflected with the dichroic mirror DM 1 is separated into green colored light and the other colored light by the dichroic mirror DM 2 bordering on the wavelength of 570nm, and green light is led to image display component 8G through field lens 7G and the die clo IKKU filter DF 1. The die clo IKKU filter DF 1 is carrying out the spectral characteristic like drawing 3 so that the nonuniformity on the strength [optical] by the incident angle dependency concerning the color separation of a dichroic mirror DM 2 may be amended, the optical intensity distribution on image display component 8G may become homogeneity, and some wavelength components may be removed. Incidence of the colored light which penetrated the dichroic mirror DM 2 is carried out to the colour selection optical-system component SC 1 through a condenser lens 9, a mirror M2, a relay lens 10, and a mirror M3. As shown in drawing 4 , the spectral transmittance of this component SC 1 penetrates long wave length from 600nm, and has the property which intercepts wavelength shorter than it. Therefore, the colour selection optical element SC 1 exists in an optical path, and when color purity is high, a red wavelength field is set to 600nm or more, the colour selection optical element SC 1 exists out of an optical path, and when color purity is low, a red wavelength field is set to 570nm or more. The spectral distribution of the light after carrying out color composition with the dichroic prism DP in case the colour selection optical element SC 1 is shown in drawing 6 (b) in case the colour selection optical element SC 1 is shown in drawing 6 (a) in an optical path out of an optical path are shown. The die clo IKKU filter which penetrates the wavelength of 600nm or more and reflects the wavelength of 600nm or less is sufficient, and the configuration which combined the die clo IKKU filter and the color filter is [the color filter which penetrates the wavelength of 600nm or more and absorbs the wavelength of 600nm or less is sufficient as the colour selection optical element SC 1, and] sufficient as it here. Moreover, the same effectiveness will be acquired if the location which inserts [optical element / SC 1 / colour selection] is from a dichroic mirror DM 2 between image display component 8R and between component 8R and Prism DP.

[0029] Either a band pass filter or an edge filter is OK as a die clo IKKU filter.

[0030] An example of the maintenance structure of the colour selection optical element SC 1 in the 1st example is shown in drawing 7 . According to the example of drawing 7 , it is fixed to the guide 12 which can be slid, and the colour selection optical element SC 1 is enabling the insertion and detachment to the optical path of the colour selection optical element SC 1, when a user makes a knob 13 slide from the exterior of equipment. It enables it to have detected electrically whether furthermore a switch 14 is formed and the colour selection optical element SC 1 is in an optical path. As another configuration, the colour selection optical element SC 1 is fixed to the guide 12 which can be slid, the colour selection optical element SC 1 is made movable together with a guide with an actuator (un-illustrating), a user

enables the insertion and detachment to the optical path of a colour selection optical element by the change of an electric switch, and you may enable it whether the colour selection optical element SC 1 is in an optical path by detecting the condition (ON or OFF) of an electric switch, and to detect electrically. Moreover, the configuration that the existence in the optical path of a component SC 1 is detected may be used by forming the detector which makes the end structure pivotable as the center of rotation for the member 15 which held the colour selection optical element SC 1 like drawing 8 , is made to move the colour selection optical element SC 1 because a user rotates a revolving shaft 17 with a knob 16 etc., and enables the insertion and detachment to an optical path, for example, detects the location of a knob 16.

[0031] The block diagram of the control circuit which displays an image on drawing 9 with the image display component in the 1st example is shown. The drive signal circuit 21 which generates a driving signal for this control circuit to drive each image display component of R, G, and B based on the picture signal of R, G, and B inputted from the outside as shown in drawing 9 , It consists of a detector 22 which detects whether said colour selection optical element SC 1 is in an optical path, and generates a detecting signal. When a circuit 21 has the colour selection optical element SC 1 in an optical path based on the detecting signal from a detector 22 When the usual driving signal is generated so that the image display component of R, G, and B may be driven with the picture signal of R, G, and B, respectively, and the colour selection optical element SC 1 is out of an optical path the time of displaying the monochrome of different red from the usual driving signal -- ******** predetermined in a blue light -- a driving signal [like] is generated. The color reproduction at this time is explained using drawing 10 , and 11 and 12. When the colour selection optical element SC 1 is in an optical path, the field of the triangle (R1, G1, B1) shown in drawing 10 turns into a color reproduction field, color reproduction with high purity becomes possible in each monochrome of R, G, and B, and image display over which priority was given to color reproduction nature can be performed. Although a color reproduction field serves as a triangle (R2, G1, B1) from which the red reappearance field shifted in the green direction as an arrow head shows in drawing 11 since 570nm - 600nm light will be added to the optical path of R if the colour selection optical-system component SC 1 is carried out out of an optical path in order to give priority to brightness by image display If drive control of each green display device is carried out with red so that blue colored light may be added to red colored light in red color specification at this time, the red reappearance field R2 shown in drawing 11 will shift in the direction of blue, and it will become a triangle (R3, G1, B1) as shown in drawing 12 . Thus, also in the image display over which 570nm - 600nm light was added, and priority was given to brightness, natural color reproduction becomes possible from the former by shifting the reappearance field of a color to a blue side. Although the selectable wavelength range is set to 570nm - 600nm by the colour selection optical element SC 1 at this example If the colors which are not restricted to this and make purity adjustable are red and green, the wavelength range used to switch purity What is necessary is for the range of a short wavelength side to be 550 to 585nm, and just to choose a long wavelength side from 590nm in 610nm that what is necessary is for the setting situation of the color reproduction of R and G in the image display over which priority is given to color reproduction nature just to determine.

[0032] <Example 2> Drawing 13 shows the 2nd example of this invention. In order to explain briefly, the same sign as drawing 1 is given to a part for the same member as the 1st above-mentioned example, explanation is omitted, and only the point which is different from the 1st example is explained.

[0033] Although the colour selection optical element SC 1 was made into the structure it inserts [structure] on an optical path by the parallel displacement in the 1st example In the 2nd example shown in drawing 13 , the colour selection optical element SC 21 has the 1st reflector M22 and 2nd reflector M23 which were formed in the front flesh side of a substrate. In the 1st reflector M22 A spectral-reflectance property in order to use it as a colour selection optical element, as shown in drawing 14 is given. A reflection property which reflects in the 2nd reflector M23 all the colored light that carries out incidence is given. It inserts from an optical path by using the 1st reflector M22 as a colour selection component by rotating a component SC 21 in the revolving-shaft time 7 which intersects perpendicularly with an optical axis, and changing said the 1st reflector M22 and said 2nd reflector M23 to incident light. As the configuration of this optical element SC 21 is shown in drawing 15 (a) and 15 (b), here What uses the 1st reflector M22 as a red reflective dichroic mirror, uses the 2nd reflector M23 as a white reflective mirror, and was formed in one parallel monotonous front flesh side, respectively may be used, and While preparing the full color filter of the absorption type which has the property of drawing 4 in the field which should be made into the 1st reflector M22 by using each of an parallel monotonous front flesh side as a white reflective mirror, the field made into the 2nd reflector M23 may be made a configuration as remaining as it is. Moreover, the 1st reflector and 2nd reflector M22 and M23 may be created on a

mutually different substrate, and you may constitute as one optical element combining them, and may insert into an optical path by turns as a separate component.

[0034] <Example 3> Optical arrangement of the 3rd example of the projection mold display by this invention is shown in drawing 16 . In the 1st and 2nd example of the above-mentioned, to having inserted [optical element / colour selection] on the optical path of red light, this is stopped, it replaces with the die clo IKKU filter DF 1 which was in the optical path of green light, the colour selection optical element SC 31 it can insert [optical element] is formed, and green purity is made adjustable by this example 3. Other configurations are the same as that of the 1st example of the above-mentioned.

[0035] In addition, the spectral characteristic of the light source 1 is the same as the spectral characteristic of the light source 1 of the 1st example (refer to drawing 5 .), and the spectral transmittance property of a dichroic mirror DM 1 of it is the same as that of the mirror DM 1 of the 1st example of the above-mentioned. Drawing 17 shows the spectral transmittance of the dichroic mirror DM 2 in **** 3 example, and drawing 18 shows the spectral transmittance of the colour selection optical element SC 31 in **** 3 example.

[0036] An operation of the optical system of drawing 16 is explained. After the white light injected from the light source 1 making it reflect and condense with a reflector 2, growing into parallel light and passing the fly eye lens arrays 3 and 4, the polarization sensing-element array 5, and a condenser lens 6, It is separated into each colored light of R, G, and B by dichroic mirrors DM1 and DM2. Pass the field lenses 7R, 7G, and 7B, and the image display components 8R, 8G, and 8B are penetrated. Each colored light of R, G, and B is compounded by 1 ** with a dichroic prism DP, expansion projection of the three compounded colored light (image) is carried out with a projector lens 11 at a screen (un-illustrating) or a wall (un-illustrating), and the full color image expanded there is formed.

[0037] The white light from the light source 1 is separated into a blue (B) colored light component and the other colored light component by the dichroic mirror DM 1 bordering on the wavelength of 505nm, and blue glow is led to image display component 8B through field lens 7B. The colored light reflected with the dichroic mirror DM 1 is separated into red light and the other colored light by the dichroic mirror DM 2 bordering on the wavelength of 600nm, and red light is led to image display component 28R through a condenser lens 9, a mirror M2, a relay lens 10, and a mirror M3. Incidence of the colored light reflected with the dichroic mirror DM 2 is carried out to the colour selection optical element SC 31. As the spectral transmittance of the colour selection optical element SC 31 is shown in drawing 18 , wavelength shorter than 570nm has the property which is made to penetrate and intercepts long wave length from it. Therefore, when the colour selection optical element SC 31 exists in an optical path, a green wavelength field is set to 505nm - 570nm, and when the colour selection optical element SC 31 exists out of an optical path, a green wavelength field is set to 505nm - 600nm. It enables it to have detected electrically whether at this time, insertion and detachment of the colour selection optical element SC 31 shall be performed in the perpendicular direction to space, the migration device of drawing 7 or drawing 8 as well as an example 1 is adopted, and the colour selection optical element SC 31 is in an optical path with detectors 14 and 18.

[0038] Although the basic configuration of the control circuit when displaying an image with the image display components 8R, 8G, and 8B is the same as that of the circuit of drawing 9 shown in the example 1 The drive signal circuit 21 here is based on a detecting signal from a detector 22. The usual driving signal which drives the image display component of R, G, and B with the picture signal of R, G, and B, respectively when the colour selection optical element SC 31 is in an optical path is generated. the time of displaying monochrome green when the colour selection optical element SC 31 is out of an optical path -- an amount predetermined in a blue light -- a driving signal is generated so that it may join green colored light. The color reproduction at this time is explained using drawing 19 , and 20 and 21. When the colour selection optical element SC 31 is in an optical path, the field of the triangle (R1', G1', B1') shown in drawing 19 turns into a color reproduction field, color reproduction with high purity becomes possible in each monochrome of R, G, and B, and image display which gave priority to color reproduction nature can be performed. Although a color reproduction field serves as a triangle (R1', G2', B1') from which the green reappearance field shifted in the direction of red as an arrow head shows in drawing 20 since 570nm - 600nm light will be added to the light of G if the colour selection optical element SC 31 is carried out out of an optical path in order to perform image display which gave priority to brightness If each display device of green and blue is driven so that blue glow may be added to a green light in green color specification at this time, it will become a triangle (R1', G3', B1') as the green reappearance field G2 shown in drawing 20 shifted in the direction of blue and shown in drawing 21 . Thus, by shifting the reappearance field of a color to a blue side, 570nm - 600nm light is added, priority is given to brightness,

and more natural color reproduction becomes possible also in image display.
[0039] In this example, the concrete signal-processing approach of the drive signal circuit 21 when carrying out a colour selection optical element out of an optical path is explained here. The detail of this circuit is shown in drawing 22 . The picture signal of R, G, and B inputted from the input section (INPUT) It is changed into a digital signal from an analog signal by the A/D section 31. By the signal-processing section 32 Signal processing, such as a gamma correction and contrast stretching, An image processing is received and it is again changed into an analog signal by the D/A section 33, and after amplifying the signal by which D/A conversion was carried out with amplifier 34 on the electrical potential difference suitable for an image display component, it inputs into each image display component, and each pixel of the image display components 8R, 8G, and 8B is driven. These the processings of a series of are controlled based on the synchronizing signal generated in the timing generating section. Conversion of the color reproduction field mentioned above by adding the processing which changes the signal of B by the conversion table beforehand set up based on the color information specified by the input signal of R, G, and B only when the signal which shows that the colour selection optical element SC 31 is out of an optical path from a detector 22 in the signal-processing section is received at this time is realizable. For example, supposing it expresses the coordinate of a color with the system of coordinates of (R, G, B) when the digital signal of the signal-processing section is expressed with the signal which is 8 bits, and changing a red color reproduction field into a blue side, it is red (255, 0, 0) -> (255, 0, 25).
Yellow (255, 255, 0) -> (255, 255, 12)
Blue (0 0,255) -> (0 0,255)
What is necessary is just to make the conversion table so that it may be changed with ****.
[0040] When the colour selection optical element SC 31 is in an optical path apart from this, the same effectiveness can be expected also by changing the table of the gamma conversion for B which was prepared two in the gamma conversion which performs conversion of an input signal and an output signal in the time of being out of an optical path and on which the contents differ mutually. The example of this gamma table is shown in drawing 23 . Here, it becomes a table in case the colour selection optical element 31 has a broken line out of an optical path on the table when the colour selection optical element 31 coming [a continuous line] in an optical path. When it is out of an optical path according to this, the output of the specified quantity (Bc) always exists in the output signal of B, and a red color reproduction field is changed. However, the green color reproduction field at this time will also be changed.
[0041] Moreover, after changing a reappearance field by the signal composition section first to an input signal as an approach of performing this conversion as shown in drawing 24 before going into the signal-processing section, A/D conversion is carried out and it may be made to perform signal processing. The detail drawing of the signal composition section is shown in drawing 25 . As shown in drawing 25 , when the signal of R flows through Switch SW to the signal of B and a colour selection component is out of an optical path, a switch is connected, and the input signal (BIN) of B is '(BIN) =(BIN) +k (RIN) by the input signal (RIN) of R.
Thus, an input signal is compounded and a color reproduction field is changed. k is a suitable constant.
[0042] <Example 4> Although the example which used two or more image display components has so far been given, this invention is not limited when the number of display devices is [two or more], and also when performing a full color display with the image display component of one sheet, it can be applied. This case is explained as the 4th example of this invention. The configuration of the projection mold display by the 4th example is shown in drawing 26 , the spectral reflectance of the dichroic mirrors DM3-DM5 in drawing 26 is shown in drawing 27 , and the spectral reflectance of the colour selection optical element SC 41 is shown in drawing 28 .
[0043] Drawing 29 and drawing 30 show the schematic diagram of the optical path of each colored light of an example 4, and the internal configuration of the image display component 8 and the optical path of each colored light, respectively. The white light with the dichroic mirror of three sheets in which a spectral reflectance as shown in drawing 27 (a), (b), and (c) is shown Blue, If the micro-lens array in which it divided into green and red light and these blue, green, and red light were prepared at the light source 1 side of the image display component 8 is irradiated by mutually different incident angle As shown in drawing 31 , one pixel (picture element) separates to three color pixels corresponding to blue, green, and red light, the liquid crystal layer of the above-mentioned image display component 8 is driven independently, respectively, and after blue, green, and red light pass a micro-lens array, the distribution exposure of them is carried out for every color at the above-mentioned color pixel.
[0044] The display condition over which priority was given to color reproduction nature by moving the

colour selection optical element SC 41 with the spectral-reflectance property of drawing 28 in the direction of an arrow head, and making it insert to an optical path, and the display condition over which priority was given to brightness can be switched with one equipment.
[0045] In addition, incidence is carried out to the color pixel corresponding to [the include angle which reflects by the include angle which carries out incidence to the micro-lens array which a red light strange good / purity / reflects with DM5 since it is mutually parallel although a dichroic mirror DM 5 differs in a location from the colour selection optical element SC 41 mutually, and is in the interior of the image display component 8, and SC41, and carries out incidence to a micro-lens array becomes mutually and the same, and] red light in both cases.
[0046] When the condition which gave priority to the brightness with which the case where the colour selection optical element SC 41 with the spectral-reflectance property of drawing 28 existed in an optical path added the 570 to 600nm wavelength range to red (R) colored light, and this component SC 41 exist out of an optical path, it is in the condition which gave priority to the color reproduction nature which does not use a 570nm - 600nm wavelength range for red light.
[0047] The mirror which reflects all light fields may be used as a component SC 41, without being limited to the colour selection optical element SC 41 using a dichroic mirror in the case of this example 4.
[0048] The device shown in drawing 7 or drawing 8 shall perform insertion and detachment of the colour selection optical element SC 41 in the direction of the arrow head in drawing, and they enable it to have detected electrically whether the colour selection optical element SC 41 is in an optical path with detectors 14 and 18 like an example 1.
[0049] Since the configuration and the drive approach of a control circuit for displaying the image of each **** by the image display component are the same as that of an example 1, the effectiveness as an example 1 that this example 4 is also the same is acquired.
[0050] However, it cannot be overemphasized that the controlled system of the control circuit of drawing 9 used in the example 1 becomes R, G and B of one LCD (liquid crystal display component) instead of three LCD (liquid crystal display component), and three color pixel groups.
[0051] Moreover, in explanation of this example 4, each part material 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 in drawing 26 which omitted explanation, and drawing 28 is the same member as the member of the same figure in drawing 1 .
[0052] <Example 5> Although the wavelength range about red colored light was changed by inserting [optical element / SC 41 / colour selection] to an optical path and red purity was made adjustable in the 4th example of the above-mentioned, the wavelength range of green colored light can also be changed by changing arrangement of the dichroic mirror in the 4th example, and the spectral characteristic of a colour selection optical element. This is explained as the 5th example of this invention. The spectral-reflectance property of the colour selection optical element SC 51 is shown in drawing and drawing 33 which show the configuration of the projection mold display by the 5th example to drawing 32 .
[0053] Drawing 34 , drawing 35 , and drawing 36 show the outline of the optical path of each colored light of this example 5, the internal configuration of the image display component 8 and the optical path of each colored light, and the plot plan of a pixel, respectively.
[0054] this example 5 of an example 4 is as green as red (R) as compared with the above-mentioned example 4 -- since it is the same as that of the above-mentioned example 4 except the optical path of (G) and the corresponding pixel being reverse, explanation of the part which overlaps an example 4 is omitted.
[0055] When the condition and Component SC 51 which gave priority to the brightness by which the 570 to 600nm wavelength range was added to green (G) colored light when the colour selection optical element SC 51 with the spectral-reflectance property of drawing 33 existed in an optical path exist optical path outside, it is in the condition which gave priority to the color reproduction nature which does not use a 600nm wavelength range from 570nm of green light.
[0056] Also in this example, the mirror which reflects all light fields may be used, without being limited to a component SC 51 using a dichroic mirror.
[0057] It enables it to have detected electrically whether the device shown in drawing 7 or drawing 8 shall perform insertion and detachment of the colour selection optical element SC 51 in the direction of the arrow head in drawing, and a component SC 51 is in an optical path like an example 4. Since the configuration and the drive approach of a control circuit which display the image of each color on an image display component are the same as an example 3, this example 5 can also acquire the same effectiveness as an example 3.
[0058] Although the example using the image display component of a transparency mold has so far been

given, the image display component of a reflective mold may be used in this invention.
[0059] Although the example which makes at least one image display component carry out incidence of the light of three colors of R, G, and B to coincidence has so far been given, this invention can apply the light of these three colors from the same direction also to the well-known display which carries out incidence to one image display component one by one. The display device of a reflective mold which is made to rock a reflector, or is made to carry out a variation rate as a component used at this time, carries out reflection deviation or reflective diffraction of the incident light, and performs light modulation is known (refer to JP,8-214243,A).
[0060] In addition, it writes that the band cut-off filter which showed the spectral characteristic by drawing 42 of the conventional example can also be used as a wavelength selection optical element.
[0061]
[Effect of the Invention] As mentioned above, according to this invention, in the display of brightness priority, a display with the fall of a screen smaller than before can be offered.

[Translation done.]

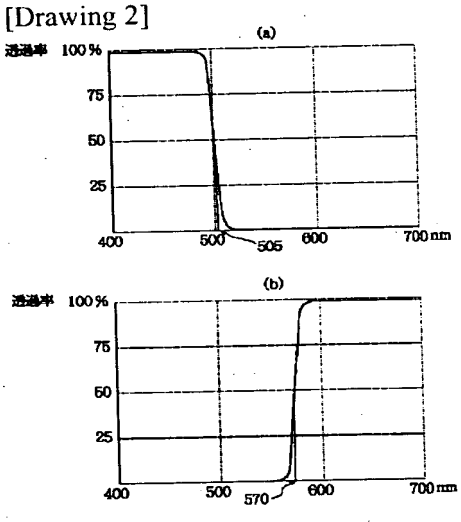
* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.

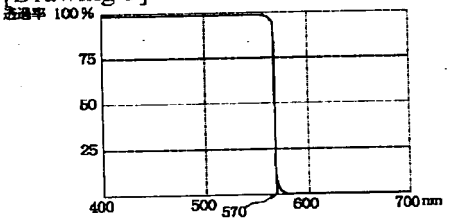
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

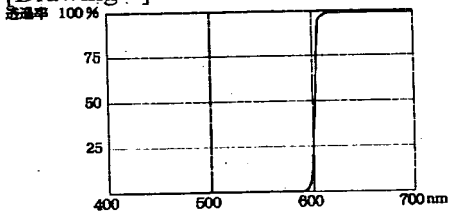
[Drawing 2]



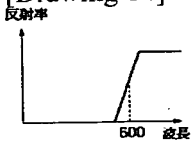
[Drawing 3]



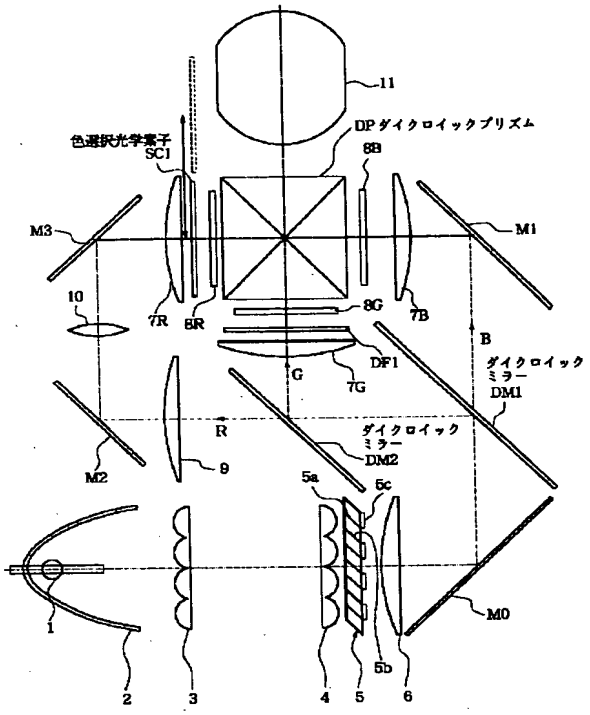
[Drawing 4]



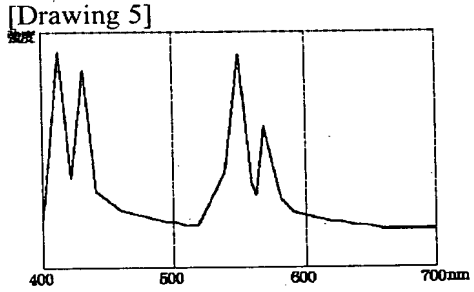
[Drawing 14]



[Drawing 1]

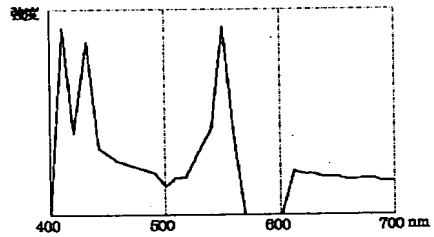


[Drawing 5]

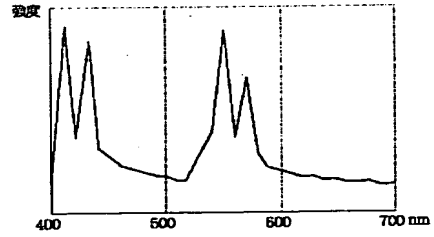


[Drawing 6]

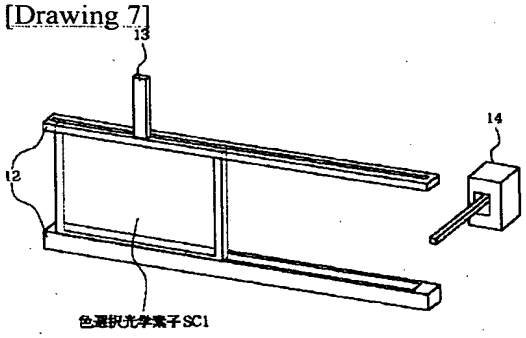
(a)



(b)



[Drawing 7]



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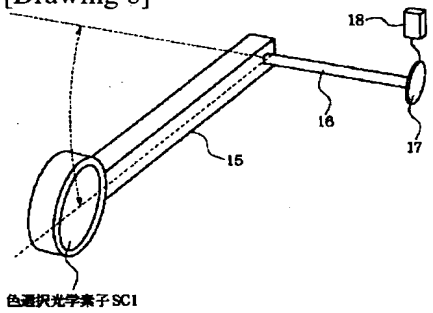

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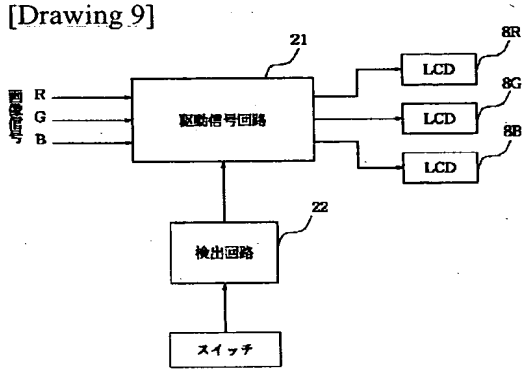

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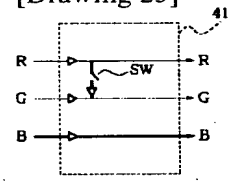
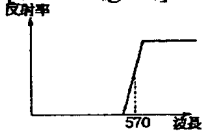
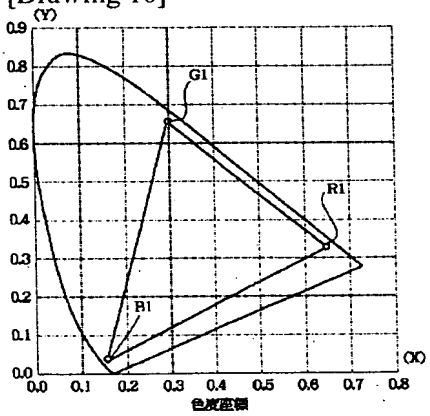


[Drawing 28]



[Drawing 33]

[Drawing 10]



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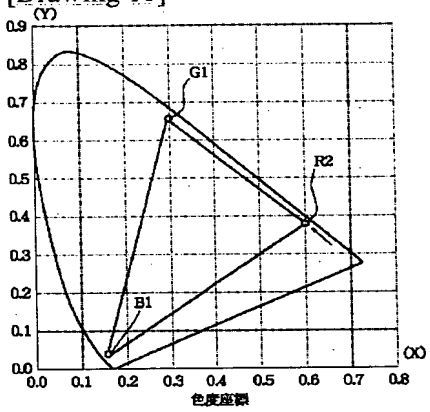

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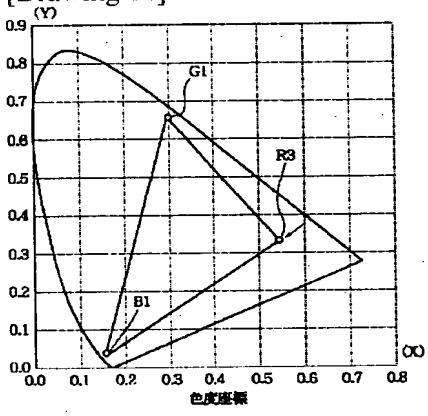

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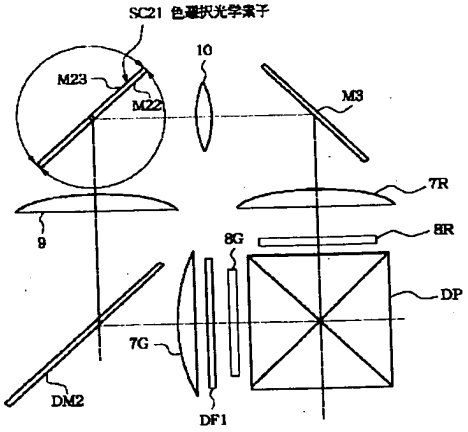

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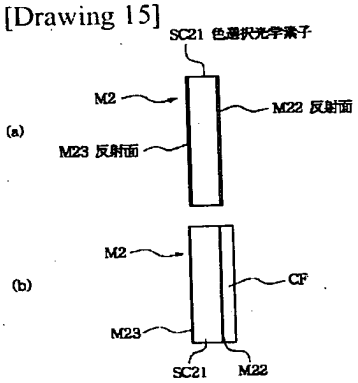
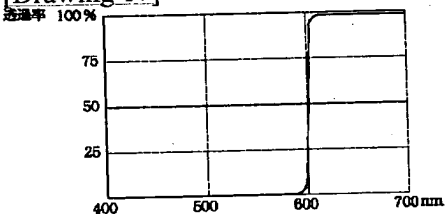
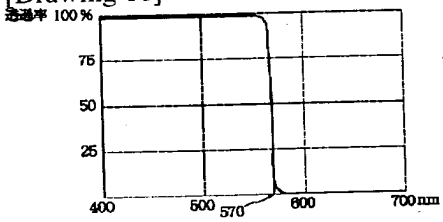


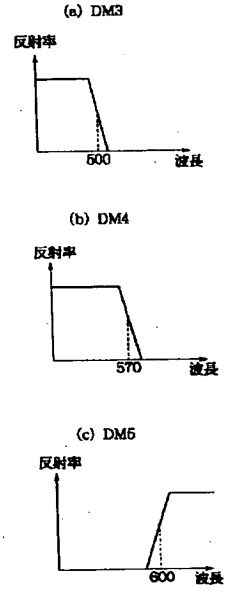
[Drawing 17]



[Drawing 18]



[Drawing 27]



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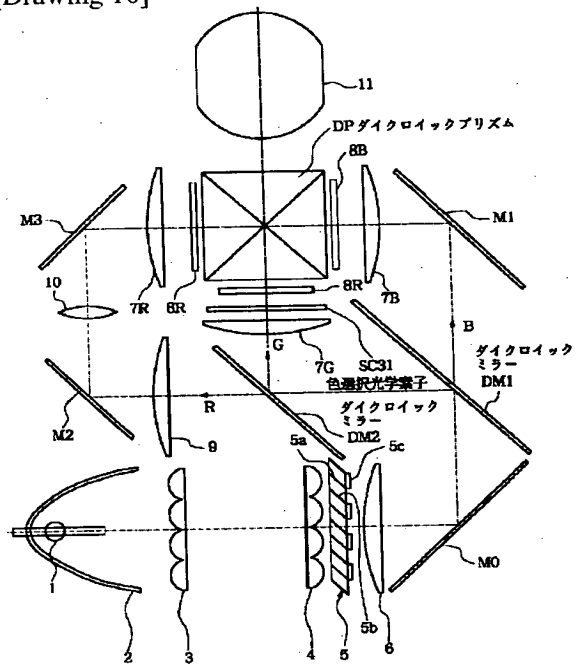

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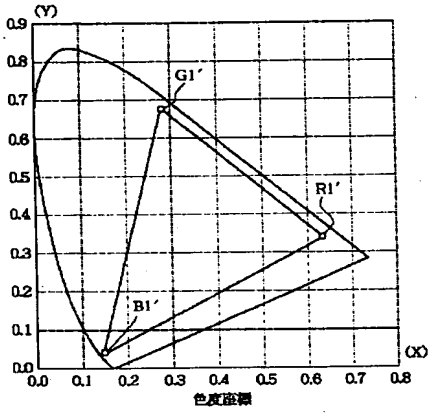
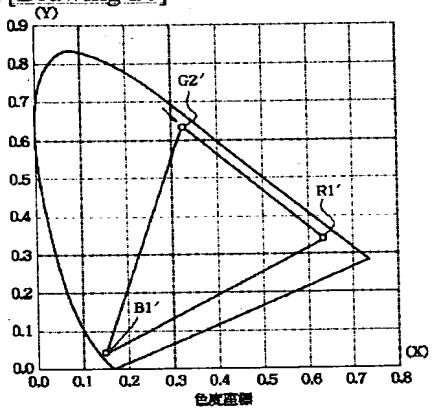
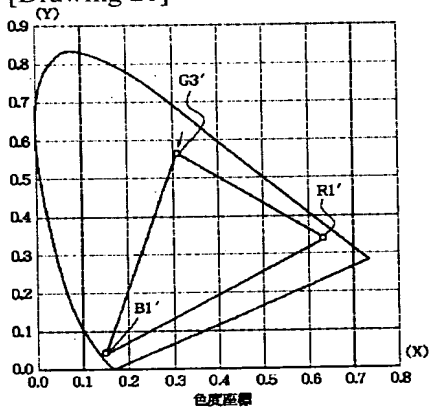


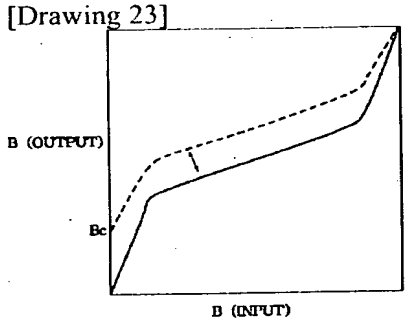
[Drawing 20]



[Drawing 21]



[Drawing 23]



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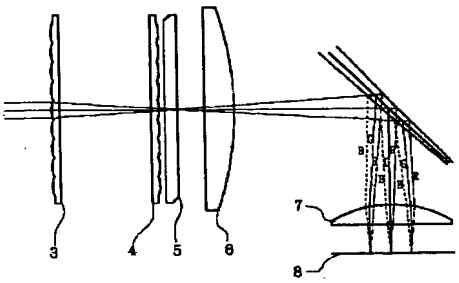

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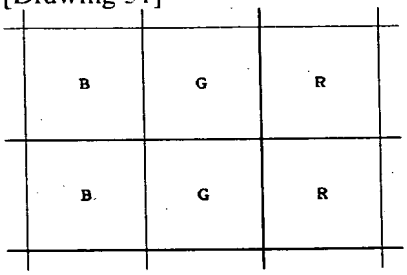

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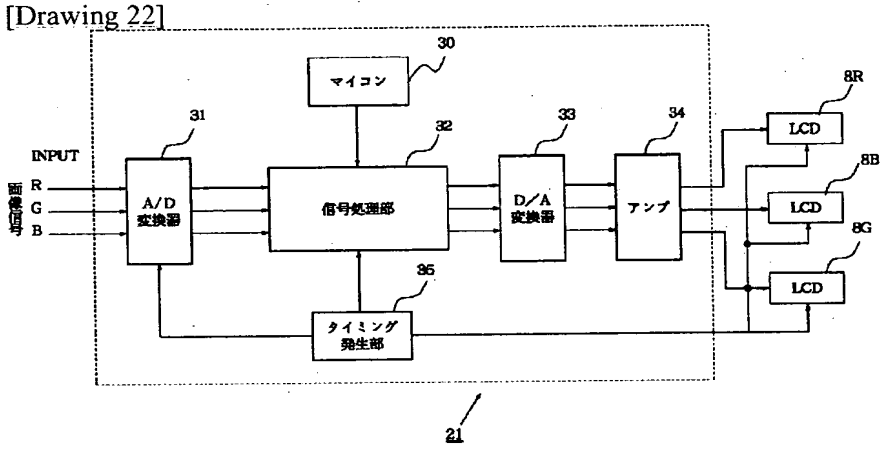

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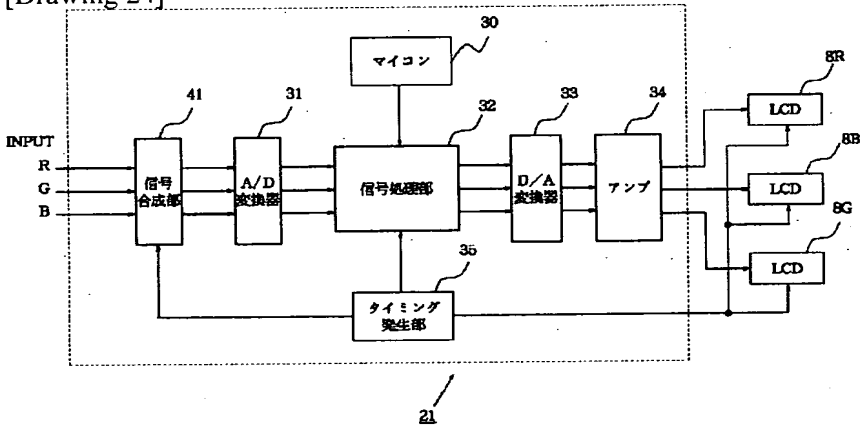
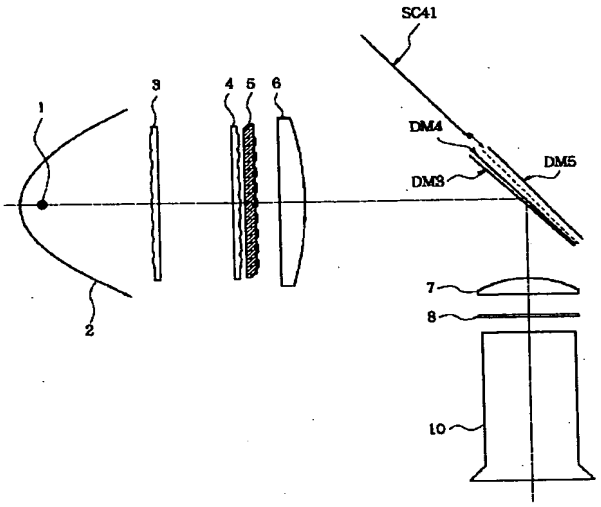
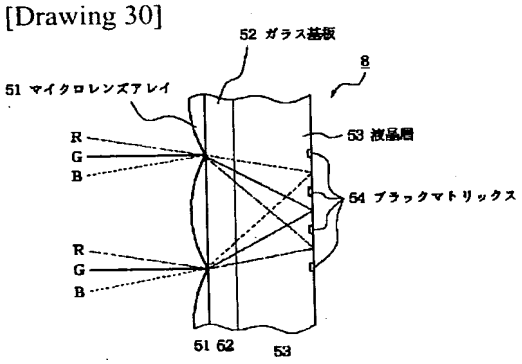


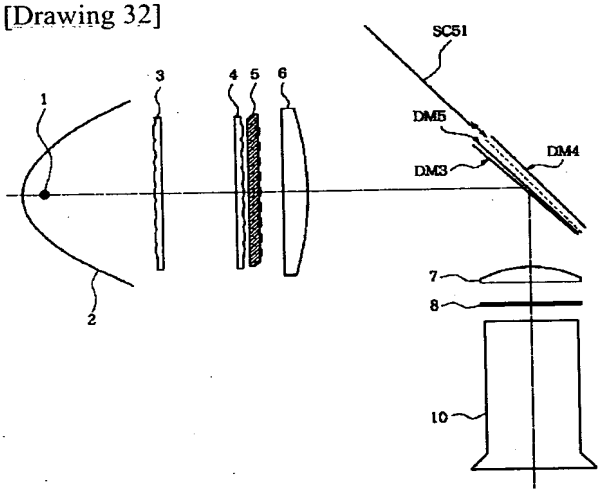
[Drawing 26]



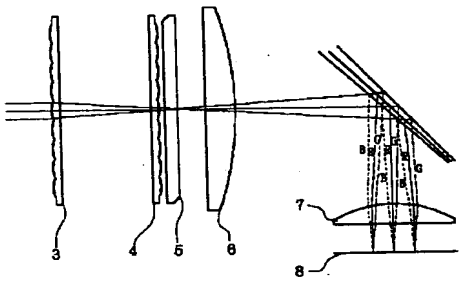
[Drawing 30]



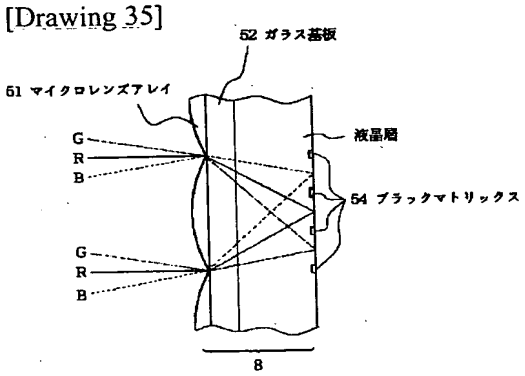
[Drawing 32]



[Drawing 34]



[Drawing 35]



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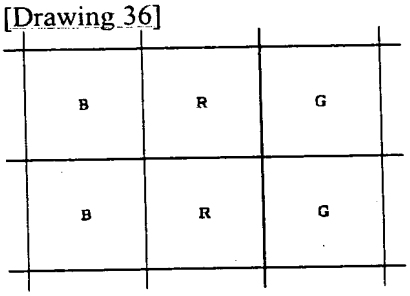
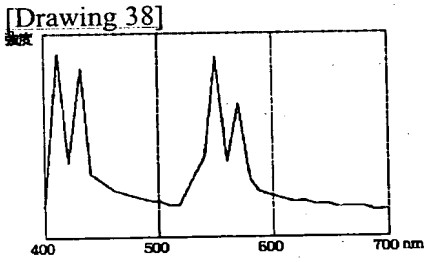
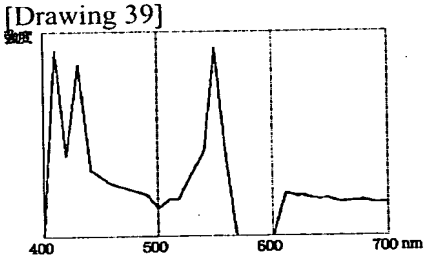


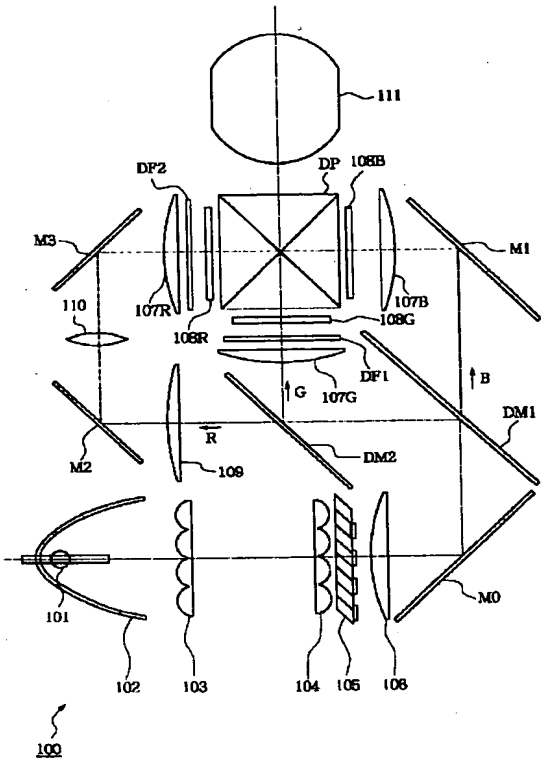
[Drawing 38]



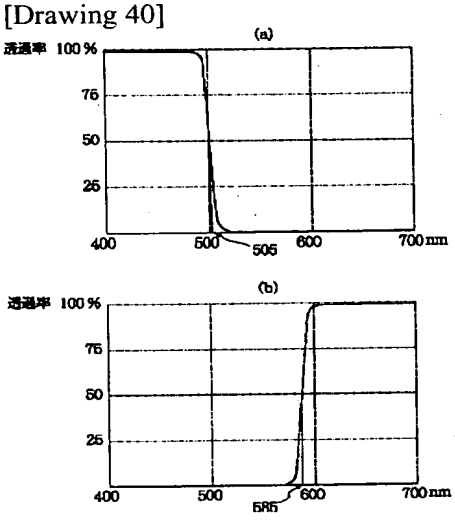
[Drawing 39]



[Drawing 37]



[Drawing 40]



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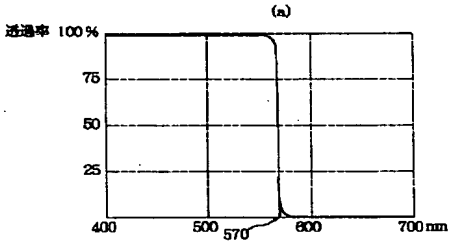
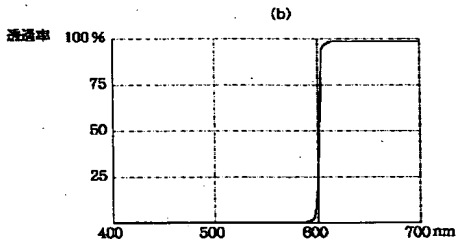
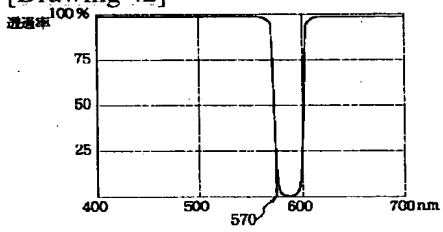




[Drawing 42]



[Translation done.]